"Comparative Study Of Antidiabetic Potential Of Cow Urine With Selected Medicinal Plants Citrus Limon (L.) & *Momordica Charantia (L.)* In Alloxan Induced Diabetic Mice."

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INTRODUCTION

Diabetes mellitus disorder of the chronic metabolism thus disorders affected humans action as- psychological , physical or social health on human body. Sugar level increase in diabetes, Diabetes mellitus is a general activity related to metabolism. whose main source is hyperglycemia. . Diabetes occurs with the highest insulin or low insulin secreation or both.(Kerner and Bruckel, 2014)

Diabetes mellitus is consists different disorder as protein and carbohydrate, fat metabolism. These Results are insulin secretion and insulin action, These disease affected different organs. Diabetes mellitus is developed severe conditions such as foot ulcer, stroke, heart disease, eye damage and kidney failure.

Classification

WHO reported the 1980-1985 published and modify classification on the diabetes mellitus. The Expert proposed are two classes divided of the diabetes mellitus on 1980, named them, Type 1 is (IDDM), and Type 2 is diabetes(NIDDM). The classes diabetes are included as Impaired Glucose Tolerance (IGT) and Gestational Diabetes Mellitus (GDM) the both class reports 1980 and 1985.

1.Type 1 Diabetes

These are insulin dependent diabetes mellitus, it is start before 15 year of age but occur the adults. Diabetes involved the pancreas gland, it gland located at stomach.

The beta cell produce a hormone such as insulin. Different factor includes viruses and genetics. These type usually appears during childhood it can develop in adult. Treatment focuses on managing blood sugar levels with insulin.

Symptoms

frequent urination
Extreme hunger
Fatigue and weakness
Irritability and other mood changes
Increased thirst

2. Type 2 Diabetes

These are Noninsulin dependent diabetes mellitus . Is a long term metabolism disorder ,characterized for high blood sugar and insulin resistance. Type 2 diabetes makes up about 90% of the cases on diabetes . that type affected people on any (age), children. Forever- type 2 diabetes is involved mostly on the middle aged , older people.

Symptoms

increased thirst
weight loss
frequent urination
weight loss

3. Gestational Diabetes

Is a condition develop woman diabetes it is produce high blood sugar level on pregnancy. Most women are able to mange their blood sugar level in exercise or diet.

Symptoms

risk of preeclampsia
depression
jaundice

4. Other Specific Types of Diabetes

Genetic defect on the β-cell function
acromegaly, Cushing syndrome, pheochromocytoma(Endocrinopathies)
Genetic defect on insulin action

Symptoms of Diabetes mellitus

Loss of growth, some infections may chronic hyperglycemia.
polyuria, weight loss, Polydipsia sometimes occur polyphagia,

Many years are prevention of the diabetes is used the many herbal medicaments.sorces of the medicinies (herbal) are medicinal product was

phytotherpay. The different medicinal plant are exhibited the metabolism of glucidic.(paolo.et.al; 2018).the medicinal plant are consist antidiabetic activity In quality are presence the polyphenols , coumarins, Flavonoids, terpenoids etc. the exhibit glucose level on blood (patel et.al; 2012)

Cow urine – The Ayurveda, cow urine (Gomutra) is considered as a holy water or "Amrita" . The sushruta samtita are define is the majority powerful substance on animal basic. Mostly of cow urine is drunk in India. The Gomutra is important substance on the panchagavya Ghrita. Panchgavya is consist fire general substances such as milk, curd, urine, dung and ghee obtained by cow. These products are used medicinal purpose. These panchgavva are used many diseases as AIDS, diabetes and cancer , Diabetes mellitus . The pregnant urine of cow is contain minerals and hormons.

Momordica charantia – **(** Bitter gourd, balsam- pear, bitter melon, bitter squash, bitter apple). It is found tropical, subtropical region. The family is cucurbitaceae , mostly grown on Africa and Asia. These fruit test are bitterness. Momordica are monophyletic or genus is divided on 11 clades. These leaves singly and stem is 3-5cm is long , leaf long is 4-10cm.

Lemon – family is Rutaceae, is a small size tree. The tree of lemon height is 10-20 ft , The leaves is dark-green (above) and below is light green. Lemon fruit are used spices and herbs. It is sources of the vitamin and help the scurvy disease . Lemon (juice) is used diuretic, astringent, tonic, diaphoretic, lotion, gargale. Citrus Lemon fruits consist organic acid, sugars, lipids, vitamins, volatile, polysaccharides, minerals.

Comparison of type 1 and type 2 DM

Feature	Type 1 Diabetes	Type 2 Daibetes
Previous names	Insulin dependent diabetes mellitus (DDM), also called juvenile onset DM	Non insulin dependent Diabetes mellitus (NIDOM), also called maturity onset diabetes mellitus
Age of onset	Usually during childhood or puberty	Frequently after age 35
Prevalence %	10% of diagnosed diabetics	90% of diagnosed diabetics
Defect or deficiency	B cells are destroyed, eliminating insulin production	Insulin resistance combined with inability of B cells to produce appropriate quantities of insulin
Ketoacidosis	Common	Rare
Plasma insulin	Low to absent	High early in disease; low in disease of long duration

Treatment	Insulin is always necessary	Diet, exercise, oral hypoglycemic drugs, +/- insulin

REVIEW OF LITERATURE

M.S. Hossain et. al., (2010) was define to examine the hepatoprotective and hypolipidemic impact on the various parts (ethyl acetate, petroleum ether & chloroform) by methanolic quotation on *Momordica charantia (family – cucrbitaceae*). In it various fractions on extract was delivered intraperitoneally of the dose quantity 150 mg/kg moved diabetic mouse or establish blood on lipid scale (Total Triglycerides an significantly and cholesterol ($P<0.05$). These are diabetic levels on rats used parameters as SGPT and SGOT. These Parameters are results show proteins stored on Mobilization. (SGPT) Serum Glutamic pyruvic Transaminase. Present study compared the standard Metformin (drug) or the plants effects on fractions

M. Abdollahi et. al: (2011) was reported on his study was *momodrdica Charantia* (MC) the fruit extract effects are changing on STZ (Streptozotocin) – induced the type-II neonatal diabetic rats. On these study diabetes mellitus are induced or neonatal rat are inject of STZ single a intrapretoneal (85 mg/kg body weight) thereafter. 12 weeks are monitored these rats was separated the three region. After than animals was sacrificed or the bloods sample are collected & define as serum insulin level and blood glucose level. The processed is used electron microscopy, immuno histochemical study and light microscopy or remove the specimens

pancreatic. These study result diabetic rats are insulin the level ($P<0.05$). or B- Cells numbers are increased.

W. Xie & L.Du, et.al; (2011) The aim of these study diabetes are related or consist inflammation. The inflammation is pncrease of development on diabetes. These studies says Chinese (Traditional) Medicines (TCM) are imortance on controlling inflammation and blood glucose lowering. Several studies explain the hypoglycemic effects with TCM examples panax Ginseng, radix Rehmanniae, fructus schisandrae, radix astragali, radix trichosanthis, radix ophiopogonis, rhizome xoptidis, radix puerariae, seman trigonellae, rhizome dioscoreae, allium sativum, rhizome polygonati, aloe vera, rhizome anemarrhenae, antihyperglycemic compounds, radix salviae miltitorrhizae, opuntia stricta, anti-inflammatory action, rhizome curcumae longae. It is studies examine the TCM are increased the hypoglycaemic effects and mediated on anti-inflammatory actions. Through these studies the aim develop other perspectives indicate to diabetes & development diabetes medicine: inflammation, antidiabetic drug, traditional medicines (Chinese),

1. Aminah, A. and Anna, P.K. et.al; (2011) These study define the *monordica charantia* are contaia compounds (bioactive). These compounds role on lowere diabetic the dpseases & antioxidant property consist. These study aim is examene the effect of mature stage on antioxidant property the bitter *(Momordica charantia*) melon and bioactive material (Phenolic). These melon ripening fruit is divided by four platform as (RSI, RS2, RS3, RS4). This study result are ripened fruit, yellowish (b*), lightness (L*) and chroma is increase. So are titratabl acidity and

pH value is decreased. The all phenolic value or ferric reducing antioxidant power (FRAP) , TPC (Total Phenolic contents) is high compared the another sample.

Blanka SvobodovA et. al; (2017) was reported on his study was a jungly variety the watermelon is used bushing medicine on Tobago and trinida are prevent diabetes, cancer and inflammation. The some studies are cultivates bitter watermelon. The bitter melon is variety of *momordica charantial*. Thes study are explain evaluates are biological activity creates, as water & ethanol extract related by aerial character. Thus study determine four antioxidant activites assay as:- TBARS, reducing power, B-Carotene bleaching and DPPH, These aissays develop tumorigenesis and cytotoxicity, inhibition of nitric oxide production, in it flavonol derivatives glycosides (eleven) and Phenolic acid (three) define.

Fazia Ghaffar et. al ; (2016) was reported this study different activites the momordica charantia was axamine on Aoac. The define antimicrobial activity. Physicochemical characteristics and nutritional composition. His result are high value iodine as (105.5), low value acid (1.3) and value of saponification (190.7) is compare the fatty acid. It oil are show good reaction the aganist bactrial and fungal (selected) strains. The results showed, Seed cake is nice sources the proteins (18.17%). The concluded is study bitter gourd seed are good antioxidant, nutritional and antimicrobial capacity show.

Supawadee et. al ; (2018) these study explained pathogenic micro-organisms presently give rise to rates in antibiotic drugs. The antibiotic combination are define these studies. As antimicrobial material and natural products. These study define pseudomonas aeruginosa, staphy lococus aureus is pathogen. They show antimicrobial activilies of the fruit extracts results the study FIC Index value are PS. Aeruginosa (3.00) and S. aureus value is 0.83.

A.Justin Themmozhi et. a l; (2009) these studies explained antioxidant capacity on *momordica charantia* fruit extract in the ammonium chloride induced the hyperammonemic mouses. In it hyperammonemia induced on matured rats (180-200g) the inject ammonium chloride (100 mg kg). three time a weeks. The rats showed the biomarker experimental and mormal animals are determine. The level of brain and liter tissues is decreased as (superoxide dismutase, reduced glutathione, glutathione peroxidase, catalase).

Aparan upadhyay et. al; (2015) the *momordica charantia* is belong the family of cucurbitaceae, *momordica charantia*, is a bitter gourd. These are cultivated are china, America, india, tropical Africa, Malaya. earlier studies showed the bitter fruit are properties consist show as: anthelmintic, aphrodisiac and caromenative. These are used on rheumatism ophthalmia and syphilis, so useful on leprosy, piles and jaundice. The plant consist protein (2.9%), fibers (1.7%), moisture (83.2%) , mineral matter (1.4%) carbon (9.8%), calcium, nicotinic acid, carotene, ascorbic acid. *M. charantia* are consist pharmacological property showed as antilipolytic, anthelmimtic, anticancer, antioxidant, antidiabetice, antiviral etc. these review explain *m. charantia* ais pharmacological was salient.

Toshihiro miura et. al; (2009) these studies explain type second diabetes is investigated the KK-AY mice. *Momordica charantia* is show hypoglycemic activities. Type 2 the animal modeles. The KK-AY rates are blood glucose reduced & after 2-4 hr orally administration ($P<0.05$). these addition AMPK (adenosine monophosphate protein kinase is activated from. The compared on *momordica charranti* a treated rats ($P<0.01$). the results are suggest derived form of antidiabetic activities MC & activation on muscle

OBJECTIVES

1. To investigate the individual and combined effect of leaf extracts of the study plants and cow urine on biochemical parameters.

2. To study the effect of leaf extracts and cow urine in different proportion on some enzymological parameters.

3. To study the effects of leaf extract and cow urine in different proportion on lipid profile of diabetic mice.

4. To compare the effect of plants leaf extract and cow urine with standard Drug Glibenclamide.

METHODOLOGY

1.Collection and identification of sample

2. Extraction preparation of selected plants –

Different solvent as- Methanol
Ethanol
Chloroform

3. Drug used in the experiment –

Glibenclamide

4.Lipid profile test

(a) Total cholesterol – cholesterol kit (DRL) method

(b) High density lipoprotein cholesterol (HDL)

(C) Low density lipoprotein cholesterol (LDL)

(D) Triglyceride (GPO-POD)

5. Enzymological parameters –

(a) SGOT – Reitman and frankel method
(b) SGPT - Reitman and frankel method
(c) Creatinine – Jaffes method
(d) Urea - GLDH Kinetic method
(e) Test for serum alkaline phosphatase activity

6. BIOCHEMICAL PARAMETERS –

(a) Test of blood Glucose – (GOD – POD method)

(b) Total protein content – Biuret method

(c) Estimation of reduced glutathione (GSH) – kinetic method (colorimetric)

7. Compare the effect of plants leaf extract and Cow urine with standard drug Glibenclamide.

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